

Technical Data Sheet ReAct[®] 727

December 2009

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Product Description

Hernon[®] ReAct[®] 727 is a tough acrylic adhesive designed primarily for securing of ceramic permanent magnet segments in motor magnet bonding applications. This adhesive has also found wide acceptance in a variety of structural bonding applications due to its versatile performance capabilities.

ReAct[®] 727 has demonstrated the ability to provide high tensile strength while maintaining excellent product flexibility. This results in tough, durable bonds with outstanding impact and peel resistance.

This tough acrylic is a single component, room temperature curing adhesive which is used in conjunction with **Hernon[®] EF[®] Activator 56**.

Product Benefits

Improved Reliability

- High impact and shock resistance
- Temperature resistance: -40 to 300°F (-40 to 149°C)
- Good gap filling properties.
- Excellent adhesion to a variety of surfaces.
- Consistent rate of cure from 60 to 100°F (16 to 38°C)
- Consistent bond strength

Improved Processing

- Fast fixturing
- No pot life, no mixing
- No waste problems
- Low toxicity
- Low odor
- Thixotropic: facilitates dispensing/applying
- Non-migrating on vertical surfaces
- Increases productivity
- Requires minimal parts cleaning
- Easy clean-up

Cost Effective

- Requires minimal clamping time and tooling.
- Eliminates high energy cost needed for heat cured materials.
- Eliminates need for mechanical clips

Typical Applications

- DC motor assembly.
- Magnet bonding.
- Bonding pre-coated sheet metal.
- Bonding ferrites, plastic, and metal wear strips.
- Bonding metals with special surface treatments such as galvanized, phosphate, and dichromate surfaces.

Typical Properties (Uncured)

Property	Value
Base Resin	Modified Acrylic
Solids	100% - No Solvents
Appearance	Off-White, Translucent
Specific gravity @ 25°C	1.07
Viscosity @ 25°C, cP	60,000
Flash point	See MSDS

Typical Curing Performance

ReAct[®] 727 is designed to be used with **EF[®] Activator 56** and cured at room temperature. Cure characteristics are measured by determining fixture time (handling time) and speed of cure.

Fixture Time

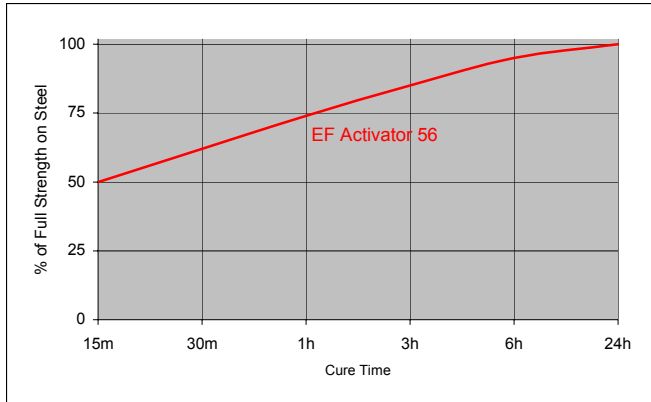
Fixture time is defined as the time to develop a shear strength of 0.1 N/mm².

Tested on steel lap-shear specimens, 1 side primed with **EF[®] Activator 56** and tested according to ISO 4587

Gap, mm	Fixture Time, seconds
0	≤ 25
0.25	≤ 330

Cure Speed

The graph below shows shear strength developed with time using **EF[®] Activator 56** on steel lap-shear specimens and tested according to ISO 4587.



Typical Cured Performance

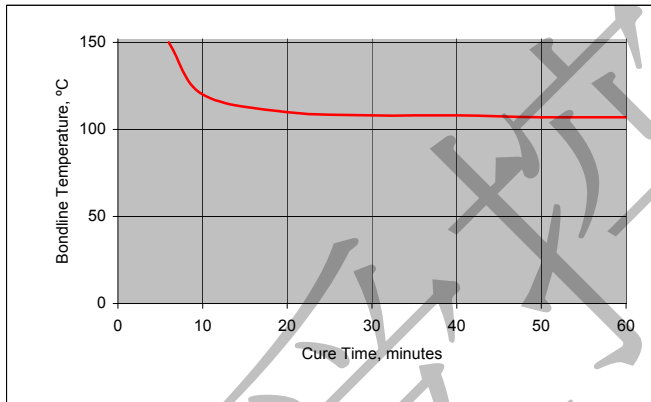
Shear Strength

Tested on lap-shear specimens with 1 side primed with **EF[®] Activator 56** and tested according to ISO 4587

Substrate	Gap, mm	RT Cure, hrs	Shear Strength N/mm ² (psi)
Steel	0	24	≥ 11.7 (2500)
Steel	0	48	20.7 (3000)
Steel	0.25	48	19.0 (2750)
Steel	0.50	48	17.4 (2520)
Aluminum	0	48	13.1 (1900)
Zinc dichromate	0	48	13.1 (1900)

Cure Speed vs. Temperature

Heat can be used to effect or accelerate cure when surface priming operations are undesirable. Typical heat cure conditions consist of heating and maintaining bondline at a temperature shown in the graph below for the corresponding time specified. Optimum conditions for heat cure should be determined on the actual assemblies.



Typical Environmental Resistance

Shear Strength, steel lap-shear specimens, 1 side primed with **EF[®] Activator 56**, cured for 48 hours at 22°C and tested according to ISO 4587

Heat Aging

Aged for 1000 hours at temperature indicated and tested at 22°C

Temperature	Shear Strength, N/mm ² (psi)
93°C	15.7 (2280)
121°C	10.8 (1560)
150°C	4.1 (600)

Humidity Resistance

Conditioned in 50°C condensing humidity for time indicated and tested at 22°C

Exposure Time	Shear Strength, N/mm ² (psi)
1 week	15.7 (2280)
2 weeks	11.2 (1620)
4 weeks	4.1 (600)

Typical Properties (Cured)

Physical Properties

Method	Property	Value
ASTM D882	Tensile Strength, psi	2,700
ASTM D882	Modulus of Elasticity, psi	21,000
ASTM D882	Elongation, %	130
ASTM D2240	Durometer Hardness, Shore D	65

Chemical/Solvent Resistance

Aged 30 days at 87°C and tested at 22°C

Chemical/Solvent	% of Initial Strength
Air Reference	100
Water Glycol 50/50	30
Gasoline	10
Motor Oil	100

General Information

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Directions For Use

1. For best performance bond surfaces should be clean and free from grease.
2. To ensure a fast and reliable cure, **EF[®] Activator 56** should be applied to one of the bond surfaces and the adhesive to the other surface. Parts should be assembled within 15 minutes.
3. The recommended bondline gap is 0.1mm. Where bond gaps are large (up to a maximum of 0.5 mm), or faster cure speed is required, **EF[®] Activator 56** should be applied to both surfaces. Parts should be assembled immediately (within 1 minute).
4. Excess adhesive can be wiped away with organic solvent.
5. Bond should be held clamped until adhesive has fixtured.
6. Product should be allowed to develop full strength before subjecting to any service loads (typically 24 to 72 hours after assembly, depending on bond gap, materials and ambient conditions).

Storage

ReAct[®] 727 should be stored in a cool, dry location in unopened containers at a temperature between 46°F to 82°F (8°C to 28°C) unless otherwise labeled. Optimal storage is at the lower half of this temperature range. To prevent contamination of unused material, do not return any material to its original container.

Dispensing Equipment

Heron[®] offers a complete line of semi and fully automated dispensing equipment. Contact **Heron[®] Sales** for additional information.

These suggestions and data are based on information we believe to be reliable and accurate, but no guarantee of their accuracy is made. HERON MANUFACTURING, INC. shall not be liable for any damage, loss or injury, direct or consequential arising out of the use or the inability to use the product. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine whether the product is of satisfactory quality and suitability for their operations, and the user assumes all risk and liability whatsoever, in connection therewith. Heron's Quality Management System for the design and manufacture of high performance adhesives and sealants is registered to the ISO 9001 Quality Standard.